

Math 571: Applied Time Series Analysis

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Sample Input for State-Space Modeling for Johnson & Johnson Earnings Data
(Example 4.10)

Output will be discussed in class

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Dimension of observation vector q (no. of series) *****

q : 1

Dimension of state vector p *****

p : 4

Forecasts, convergence, initial number of iterations *****

forecasts: 10

convergence: .01

iterations: 100

m. v. code: 0

List of 1 observation vectors *****

series 1:

1 J&J

Prior mean vector for X_0 of dim 4 *****

μ 1: .5

μ 2: .3

μ 3: .2

μ 4: .1

Structural mean indicator vector of dim 4 (1=fix) *****

row 1: 0

row 2: 0

row 3: 0

row 4: 0

Prior covariance matrix for X_0 of dim 4x4 *****

row 1: .01 .01 .01 .01

row 2: .01 .01 .01 .01

row 3: .01 .01 .01 .01

row 4: .01 .01 .01 .01

Transition matrix Φ of dim 4x4 *****

row 1: 1.03 0 0 0

row 2: 0 -1 -1 -1

row 3: 0 1 0 0

row 4: 0 0 1 0

Structural PHI indicator matrix of dim 4x4 (1=fix) *****

row 1: 0 1 1 1

row 2: 1 1 1 1

row 3: 1 1 1 1

row 4: 1 1 1 1

State covariance matrix Q of dim 4x4 *****

row 1: .01 0 0 0

row 2: 0 .1 0 0

row 3: 0 0 0 0

row 4: 0 0 0 0

Structural Q matrix of dim 4x4 (1=fix) *****

row 1: 0 1 1 1

row 2: 1 0 1 1

row 3: 1 1 1 1

row 4: 1 1 1 1

Measurement matrix A of dim 1x4 *****

row 1: 1 1 0 0

Structural A matrix of dim 1x4 (1=fix) *****

row 1: 1 1 1 1

Observation covariance matrix R of dim 1x1 *****

row 1: .04

Structural R matrix of dim 1x1 (1=fix) *****

row 1: 0

Output for the State-Space Modeling for J&J Data.

State-Space estimates

Mean

.4308

.2308

.1308

.0308

Initial covariance matrix SIGMA

.01000 .01000 .01000 .01000

.01000 .01000 .01000 .01000

.01000 .01000 .01000 .01000

.01000 .01000 .01000 .01000

Transition matrix PHI

1.0355	.0000	.0000	.0000
.0000	-1.0000	-1.0000	-1.0000
.0000	1.0000	.0000	.0000
.0000	.0000	1.0000	.0000

State covariance matrix Q

.0146	.0000	.0000	.0000
.0000	.0495	.0000	.0000
.0000	.0000	.0000	.0000
.0000	.0000	.0000	.0000

Measurement matrix A

1.0000	1.0000	.0000	.0000
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Measurement error covariance matrix R

.01610



